UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/766,336	01/18/2001	Michael Burrows	9772-0304-999	7722

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PENNIE & EDMONDS LLP
COUNSELLORS AT LAW
3300 Hillview Avenue
Palo Alto, CA 94304

EXAMINER
PHAM, HUNG Q

ART UNIT	PAPER NUMBER
2162	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/766,336	BURROWS ET AL.
	Examiner	Art Unit
	HUNG Q PHAM	2172

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8-11,16-19 and 24* is/are rejected.

7)☒ Claim(s) *4-7,12-15 and 20-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1   The following is a quotation of 35 U.S.C. 103(a) which forms the

basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

This application currently names joint inventors. In considering

patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that

the subject matter of the various claims was commonly owned at the time any

inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor

and invention dates of each claim that was not commonly owned at the time a

later invention was made in order for the examiner to consider the applicability of

35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35

U.S.C. 103(a).

2.   **Claims 1, 3, 8, 9, 11, 16, 17, 19 and 24 are rejected under 35**

U.S.C. 103(a) as being unpatentable over Broder et al. [USP 6,073,135].

Regarding to claims 1 and 9, Broder teaches a method and computer

program for representing and navigating the connectivity of Web pages

(Abstract). As shown in FIG. 3, the input for building the graph 200 (Col. 3, Lines

57-60) is the step of *obtaining page link information for a set of pages, the page link information including for the pages in the set a row of page identifiers of other pages*, and *arranging the rows of page identifiers in a particular order*. Broder further discloses the step of *for each respective row*, such as www.foobar.com, *identifying a reference row*, such as www.foobar.com/gandalf.html, *if any, that best matches the respective row in accordance with* large prefix portion in common as *predefined row match criteria* (Col. 3, Line 63-Col. 4, Line 4). Broder does not explicitly teaches the step of *encoding the respective row as an identifier for the identified reference row, if any, a set of deletes representing page identifiers in the identified reference row not in the respective row, and a set of adds representing page identifiers in the respective row not in the identified reference row*. However, as taught by Broder (Col. 3, Lines 60-62 and Col. 4, Lines 1-18), the sorted URLs are delta encoded to produce a list 340. In the list 340, each entry 341 is stored as a difference between the current URL and a previous URL. For example, if the input URLs 310 are www.foobar.com/, www.foobar.com/gandalf.html and www.foograb.com/, then the output delta encoded URLs 340 are:

0	www.foobar.com/
14	gandalf.html
7	grab.com/

Each entry 341 of the list 340 includes a delta field 343 that stores the bytes that are different than the shared prefix, and a field Node ID 345 identifies the node that represents the corresponding page. As seen, if www.foobar.com as

the respective row, obviously, gandalf.html representing

www.foobar.com/gandalf.html as *page identifier in* www.foobar.com/gandalf.html

as *identified reference row not in* www.foobar.com as *the respective row*, and

grab.com representing www.foograb.com/ as *page identifier* in www.foobar.com

as *the respective row not in* www.foobar.com/gandalf.html as *identified reference*

row, and obviously, www.foograb.com/ as *an identifier for*

www.foobar.com/gandalf.html as *identified reference row*. It would have been

obvious for one of ordinary skill in the art at the time the invention was made to

modify the Broder method by using the output delta encoded URLs to generate a

deletes and adds set for encoding.

Regarding to claim 17, Broder teaches a method and system for

representing and navigating the connectivity of Web pages (Abstract). As shown

in FIG. 1, the connectivity server 150 is *a central processing unit for performing*

computations in accordance with stored procedures with *a network interface for*

accessing remotely located computers via a network; *memory, coupled to the central*

processing unit, for storing procedures and data. As shown in FIG. 3, Col. 3, Lines

57-60 is *a first module for obtaining page link information for a set of pages, the page*

link information including for the pages in the set a row of page identifiers of other

pages, and *a second module for storing the page link information*, and *arranging the*

rows of page identifiers in a particular order. Broder further discloses the technique

of *for each respective row*, such as www.foobar.com, *identifying a reference row*,

such as www.foobar.com/gandalf.html, *if any, that best matches the respective row*

in accordance with large prefix portion in common as *predefined row match criteria*

(Col. 3, Line 63-Col. 4, Line 4). Broder does not explicitly teaches *a web crawler*

module, executable by the central processing unit, for downloading a set of pages from

remotely located servers via the network interface, and the technique of *encoding the*

respective row as an identifier for the identified reference row, if any, a set of deletes

representing page identifiers in the identified reference row not in the respective row,

and a set of adds representing page identifiers in the respective row not in the identified

reference row. However, a Web crawler is used to build relatively small databases

of local linkage information also disclosed by Broder as in Col. 1, Lines 43-48.

Thus, a web crawler for downloading a set of pages from remotely located

servers 120 as in FIG. 1, obviously, could be used to use for the input. Broder

further disclosed as in Col. 3, Lines 60-62, and Col. 4, Lines 1-18, the sorted

URLs are delta encoded to produce a list 340. In the list 340, each entry 341 is

stored as a difference between the current URL and a previous URL. For

example, if the input URLs 310 are www.foobar.com/,

www.foobar.com/gandalf.html and www.foograb.com/, then the output delta

encoded URLs 340 are:

```
0                         www.foobar.com/
14                        gandalf.html
7                         grab.com/
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Each entry 341 of the list 340 includes a delta field 343 that stores the

bytes that are different than the shared prefix, and a field Node ID 345 identifies

the node that represents the corresponding page. As seen, if www.foobar.com as

the respective row, obviously, gandalf.html representing

www.foobar.com/gandalf.html as *page identifier in* www.foobar.com/gandalf.html

as *identified reference row not in* www.foobar.com as *the respective row*, and

grab.com representing www.foograb.com/ as *page identifier* in www.foobar.com

as *the respective row not in* www.foobar.com/gandalf.html as *identified reference*

row, and obviously, www.foograb.com/ as *an identifier for*

www.foobar.com/gandalf.html as *identified reference row*. It would have been

obvious for one of ordinary skill in the art at the time the invention was made to

modify the Broder method by using a web crawler, and the output delta encoded

URLs for the input data and to generate a deletes and adds set for encoding.

Regarding to claims 3, 11 and 19, Broder teaches all the claim subject

matters as discussed in claims 1, 9 and 17, Broder further discloses *delta*

encoding the set of deletes and delta encoding the set of adds for each respective row

(FIG. 3).

Regarding to claims 8, 16 and 24, Broder teaches all the claim subject

matters as discussed in claims 1, 9 and 7, but does not explicitly teach *when no*

reference row exists for a respective row, encoding the respective row by encoding a

null reference row identifier and a set of adds representing the page identifiers in the

respective row. However, as shown in FIG. 3, if there is no URLs is in common

with the input URL 310, obviously, field 343 will be NULL and the entry 341

representing the page identifier of the input only. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include the step of encoding a null for the URL if there is no common URL in the input data in order to represent and navigate the connectivity of Web pages.

3.   **Claims 2, 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Broder et al. [USP 6,073,135] in view of Shay [Understanding Data Communication & Networks].**

Regarding to claims 2, 10 and 18, Broder teaches all the claim subject matters as discussed in claims 1, 9 and 17, but does not disclose *Huffman coding values representing the set of deletes and the set of adds for each respective row*. Shay teaches Huffman coding values for data compression (Shay, pages 188-192). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to use Huffman coding values as taught by Shay to encode the delta in order to reduce the size of the database.

Allowable Subject Matter

4.   **Claims 4-7, 12-15 and 20-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

The following is a statement of reasons for the indication of allowable subject matter:

Regarding to claims 4, 12 and 20, Broder teaches all the claim subject matters as discussed in claim 1, but fails to teach or suggest *Huffman coding the delta encoded set of deletes and delta encoded set of adds for each respective row.*

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q PHAM whose telephone number is 703-605-4242. As of October 21, 2004, new number should be (571) 272-4040. The examiner can normally be reached on Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E BREENE can be reached on 703-305-9790. As of October 21, 2004, new number should be (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6.   Information regarding the status of an application may be obtained

from the Patent Application Information Retrieval (PAIR) system. Status

information for published applications may be obtained from either Private PAIR

or Public PAIR. Status information for unpublished applications is available

through Private PAIR only. For more information about the PAIR system, see

http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free).

Examiner Hung Pham
September 20, 2004

SHAHID ALAM
PRIMARY EXAMINER